

CLAIMS

I claim:

1. A device for treating an aneurysm in the wall of a bodily vessel comprising an elongated body having a longitudinal axis and defining at least one lumen along said longitudinal axis, a distal end of said elongated body being connected to a source of crosslinking solution and a means for pumping said crosslinking solution from said source through said lumen out a port toward the proximal end of the elongated body for crosslinking at least a portion of the vessel.
2. The device as claimed in claim 1 wherein the crosslinking solution is an aldehyde solution.
3. The device as claimed in claim 1 wherein the crosslinking solution is a glutaraldehyde solution.
4. The device as claimed in claim 1 wherein the crosslinking solution is carbodiimide.
5. The device as claimed in claim 1 wherein the elongated body is a catheter.
6. The device as claimed in claim 5 wherein the catheter further comprises an occlusion means for isolating the aneurysm.
7. The device as claimed in claim 6 wherein the occlusion means comprises two or more balloon membranes connected to the catheter and spaced a predetermined distance apart.
8. A balloon catheter for treating an aneurysmal wall of a bodily vessel, said catheter defining one or more lumens for inflation and deflation of two spaced apart balloon membranes connected to the catheter and defining one or more lumens for infusion of a crosslinking solution through one or more ports in the catheter between said balloon membranes for crosslinking the aneurysmal wall, a distal end of the catheter being connected to a crosslinking solution reservoir.

9. The balloon catheter as claimed in claim 8 wherein the crosslinking solution is an aldehyde solution.

10. The balloon catheter as claimed in claim 8 wherein the crosslinking solution is a glutaraldehyde solution.

11. The balloon catheter as claimed in claim 8 wherein the crosslinking solution is carbodiimide.

12. A method for treating a weakened portion of a vessel having an inner surface comprising the steps of:

(a)isolating the weakened portion of the vessel;

(b)passing an isolation device having an outer surface through the weakened portion of the vessel;

(c)filling the area between the inner surface of the weakened portion of the vessel and the outer surface of the catheter with a filling material; and

(d)removing the isolation device from the weakened portion of the vessel.

13. The method as claimed in claim 12 wherein the isolation device is a stent graft.

14. The method as claimed in claim 12 wherein the filling between the inner surface of the weakened portion of the vessel and the outer surface of the catheter with a filling material forms a blood passage way.

15. A method for treating an aneurysm in the wall of a bodily vessel defined by an aneurysmal wall with adjacent normal wall portions, said method comprising the steps of:

(a)inserting an elongated body into the blood vessel, said elongated body having a longitudinal axis and defining at least one lumen along said longitudinal axis and having at least one port;

(b)advancing said elongated body to a location wherein the port is near the aneurysm; and

(c)injecting crosslinking solution through said lumen out of the port into the blood vessel such that it contacts the aneurysmal wall.

16. The method as claimed in claim 15 wherein crosslinking solution is an aldehyde.

17. The method as claimed in claim 15 wherein the crosslinking solution is glutaraldehyde.

18. The method as claimed in claim 15 wherein the crosslinking solution is carbodiimide.

19. The method as claimed in claim 15 wherein the elongated body is a catheter.

20. The method as claimed in claim 15 wherein the elongated body is a balloon catheter having spaced apart balloon membranes and wherein prior to injecting the crosslinking solution through the port

between the balloon membranes, the balloon membranes are inflated on both sides of the aneurysm and contact the vessel wall so as to seal off the aneurysm from the rest of the vessel.

21. A method for treating an aneurysm in the wall of a bodily vessel defined by an aneurysmal wall with adjacent normal wall portions, said method comprising the steps of:

- (a) inserting a catheter into the vessel, said catheter defining one or more lumens for inflation and deflation of two spaced apart balloon membranes connected to the catheter and defining one or more infusion/vacuum lumens for infusion or removal of one or more solutions through one or more infusion/vacuum ports in the catheter between said balloon membranes;
- (b) positioning the catheter such that the balloon membranes are on opposite sides of the aneurysm;
- (c) inflating both balloon membranes such that the balloon membranes and the aneurysmal wall define a treatment chamber which is isolated from the rest of the vessel, the balloon membranes upon inflation contact the vessel wall;
- (d) infusing a crosslinking solution through the infusion/vacuum lumen into the treatment chamber; and
- (e) removing the crosslinking solution from the treatment chamber.

22. The method as claimed in claim 21 further comprising the step of infusing a flushing solution through the infusion/vacuum port into the treatment chamber and removing said flushing solution from the treatment chamber through said infusion/vacuum port prior to infusing the crosslinking solution.

23. A method for treating an aneurysm in the wall of a bodily vessel defined by an aneurysmal wall with adjacent normal wall portions, said method comprising the steps of:

- (a) isolating, with an isolation means, a volume in the vessel around the aneurysm;
- (b) injecting a crosslinking solution into the volume;
- (c) clearing the isolated volume of the crosslinking solution; and
- (d) removing the isolation means.

24. The method as claimed in claim 23 further comprising the steps of injecting a flushing solution into the volume and removing said flushing solution prior to injecting the crosslinking solution.

25. The method as claimed in claim 23 wherein the isolation means comprises a balloon catheter having two spaced apart balloon membranes and wherein the crosslinking solution is an aldehyde solution.

26. A method for treating an aneurysm in the wall of a bodily vessel defined by an aneurysmal wall with adjacent normal wall portions, said method comprising the steps of:

- a) laparoscopically accessing an exterior surface of the aneurysmal wall; and
- b) applying a crosslinking solution to the exterior surface of the aneurysmal wall.

27. The method as claimed in claim 26 wherein crosslinking solution is an aldehyde.

28. The method as claimed in claim 26 wherein the crosslinking solution is glutaraldehyde.
29. The method as claimed in claim 26 wherein the crosslinking solution is carbodiimide.
30. A method for treating a brain aneurysm defined by an aneurysmal wall with adjacent normal wall portions, said method comprising the steps of:
- a) inserting a needle into the brain such that a tip of said needle is adjacent an exterior wall of the brain aneurysm;
 - b) injecting a crosslinking solution onto the exterior surface of the aneurysmal wall.
31. The method as claimed in claim 30 wherein crosslinking solution is an aldehyde.
32. The method as claimed in claim 30 wherein the crosslinking solution is glutaraldehyde.
33. The method as claimed in claim 30 wherein the crosslinking solution is carbodiimide.
34. The method as claimed in claim 23 wherein the crosslinking solution is injected into the volume by means of a cannula, said cannula being inserted laparoscopically such that a distal end of said cannula is inside the aneurysm.